

1.i) Light stage : **Photolysis** (1mk)
 Dark stage: **Carbon (IV) Oxide fixation** (1mk)

- ii) - Hydrogen ions
 - Adenosine triphosphate /energy rej; ATP
 - Oxygen

c) guard cells, palisade cells, spongy mesophyll cells

2. In plants- Guard cells; root hair cells; palisade cells
 In animals- sperm cell; white blood cells; Red blood cells; nerve cells.

3. (i) pair of forceps';
 (ii) picking up small stinging crawling animals;

4. Mag. = image size ; 1mm = 1000μm

Actual size

$$= \frac{1\text{mm} \times 1000\mu\text{m}}{\text{Actual size}}$$

$$\text{Actual size} = \frac{1000}{40,000} \mu\text{m} ; = \frac{1}{40} = 0.025\mu\text{m}$$

5. (i) Hypertonic solution; *acc.* Highly concentrated solution (1mk)
 (ii) Hypotonic solution; *acc.* More dilute solution;

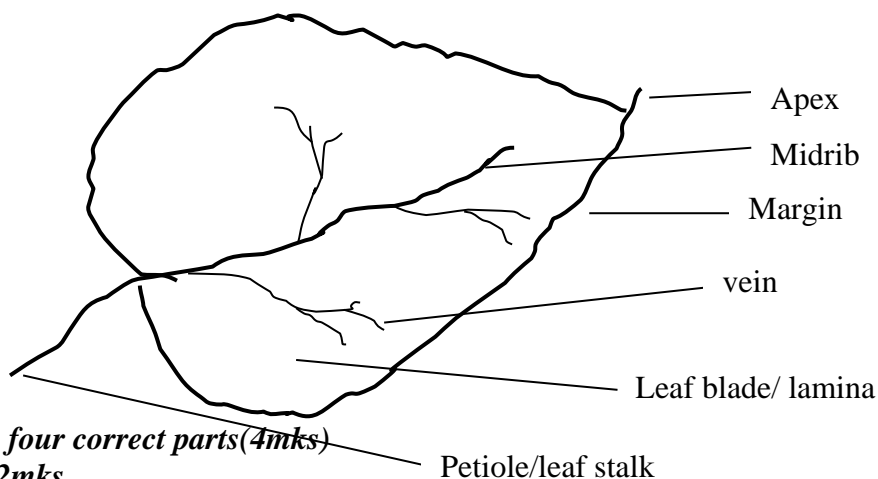
6. - (i) Cellulose; (ii) Glycogen;

7. Glucose and fructose;
 Glucose and galactose;
 Glucose and glucose;

8 (a) Nutrition; Growth and development;
 Respiration; Reproduction;
 Gaseous exchange; Irritability;
 Excretion; Movement;

(b) Monera;Protoctista/protista;Fungi;

9.



Mark any four correct parts(4mks)
Drawing 2mks

10. (Two names used) -first name – generic, second name species;
 -Two names italicized /underlined separately /
 -First names capital, second; name small letter;

11. (a) Structural differentiation / modification of cells to perform specific function;

- (b) Epithelial tissue;
 Skeletal;
 Blood;
 Connective tissue;

Mark the 1st 3

- c) - Objective lenses
 - Eye piece lens
 -Condenser lens

- 12.a) K - Liver

L -Oesophagus/gullet

M -Sublingual salivary glands

P -parotid salivary gland

- b) - gastrin
 - Secretin
 - Cholecystokinin

Light Microscope	Electron Microscope
Low magnification power	High magnification power
Low resolving/resolution power	High resolving/resolution power
Uses light rays to illuminate specimens	Uses a beam of electrons to illuminate specimens
Can be used to view both live and dead specimen	Used to view only dead specimen

- 14.- Basal Metabolic Rate(BMR) - sex
 - Age - occupation/everyday activity
 - Surface Area to volume ratio/ body size- lactation & pregnancy

15. Define the following branches of Biology. (2 marks)

- i) Genetics-*Study of inheritance and variation*
 ii) Entomology-*Study of insects*

16. a) Production of ribosomes.

- b) Packaging and transport of glycoprotein's
 Secretion of synthesized proteins and carbohydrates.
 Production of lysosomes.

17. (a) Molar; accept pre-molar.

(b) Presence of two roots; presence of cusps; accept any one.

(c) chewing/crushing/grinding food;

(d) Detect stimuli;(pain,heat,cold)

(e). P enamel

- O nerve fibre
- R blood capillaries
- S pulp cavity

18. An experiment was set-up in a laboratory as shown below.

- i. What will happen to visking tubing in M and N after two hours. (2mks)
M – will swell / increase in size
N – Will shrink / decrease in size

- ii. Explain the observations made in M. (2mks)
Sodium chloride solution is a hypertonic solution while distilled water is a hypotonic solution therefore distilled water molecules will move from the beaker to the visking tubing by osmosis making it to swell.

- iii. What does visking tubing represent in a living organism? **Semi permeable membrane**

19.a) Name the mode of nutrition of the animal whose jaw is shown above. (1mk)

Heterotrophism

b. Mode of feeding. (1mk)

Herbivorous / herbivory

c. Give a reason for your answer in (b) above. (1mk)

Presence of a diastema

d. Diet of the animal. (1mk)

Vegetation/ grass/green leaves.

e. Name the toothless gap labeled K. (1mk)

Diastema

f. Name the substance that is responsible for hardening of teeth. (1mk)

Calcium phosphate & carbonates

